

CLAIMS

I/WE CLAIM:

1. In a communications and computing environment an apparatus for verifying an at least one service bill issued to an at least one subscriber by a service provider, the apparatus comprising the elements of:
 - an at least one user device associated with the at least one subscriber, for generating an at least one user data record describing an at least one usage unit of a service provided by the service provider;
 - an at least one bill verification device for receiving and storing bill calculation and bill generation information from the at least one user device and from an at least one service provider device, and for calculating and generating an at least one comparison bill, for comparing the at least one calculated and generated comparison bill with the at least one service usage bill issued by the service provider;
- thereby verifying the at least one service usage bill issued by the service provider.
2. The apparatus of claim 1 wherein the at least one user device is a mobile telephone communication device.
3. The apparatus of claim 2 wherein the at least one user device is a communications-enabled Personal Digital Assistance device.
4. The apparatus of claim 3 wherein the at least one user device is an enhanced credit card having dynamic data storage capabilities.
5. The apparatus of claim 1 wherein the at least one user device comprises the elements of:
 - a service handler component for initiating and for performing service usage, for generating an at least one service usage unit associated with the service usage, and for storing the at least one service usage unit;

a service usage log file held in an internal memory device of the at least one user device and coupled to the service handler component for storing service usage information generated via service usage;

5 a user data record builder component coupled to a service usage log file for creating an at least one user data record based on the service usage file and carrying information based on an at least one least usage unit of a service provided by the service provider;

10 a user data records file held in the internal memory device of the at least one user device and coupled to the user data record builder component for storing the at least one user data record generated by the user data record builder component;

15 a transmission scheduler component coupled to a user interface for receiving and for holding transmission scheduling control information and for activating a user data record transmission process by sending activation commands in response to transmission scheduling control information;

20 a user data records transmitter component coupled to a communications device for transmitting user data records to a bill verification device in response to the activation commands received from the transmission scheduler component.

6. The apparatus of claim 5 wherein the at least one user device further comprises a user interface for enabling communication between the at least one user device and an at least one subscriber operating the at least one user device.

25 7. The apparatus of claim 1 wherein the at least one bill verification device comprises the elements of:

a user data records database held in an internal memory device of the at least one bill verification device for storing user data records transmitted from the at least one user device;

a service provider billing system rules file for storing billing system rules obtained by the at least one bill verification device from the at least one service provider device;

5 a service provider billing system subscriber service contract file for storing subscriber contract information obtained by the at least one bill verification device from the at least one service provider device;

a subscriber rules and subscriber group rules file for holding subscriber-specific and subscriber-group-specific control data;

10 a service usage bill issued by the service provider billing system device;

a bill and subscriber processor component for calculating and generating a comparison bill and for processing subscriber and subscriber group control information;

15 a bill comparator component to compare between the comparison bill and the service usage bill issued by the service provider billing system;

20 a billing difference and subscriber and subscriber group rule based indicators formatter component for formatting the results generated by the bill and subscriber processor component and the bill comparator component;

a merger component for merging the difference indicators and the subscriber and the subscriber group rule based indicators into the comparison bill and for generating a verification bill resulting from the merging process;

25 a verification bill for displaying the detailed billing charges information calculated internally, the difference indicators between the comparison bill and the bill issued by the service provider billing system, and the subscriber and the subscriber group rule-based indicators.

8. The apparatus of claim 7 wherein the at least one bill verification device further comprises the elements of:

5 a subscriber rules-based and subscriber group rules-based actions table for storing rules-based actions to be performed in response to the identification of post-billing conditions defined by the combination of rules, counter values and limitation values;

a subscriber control file for storing subscriber counters and subscriber limitations;

10 a subscriber control file updater for updating subscriber counters in response to results generated by the bill and subscriber processor component;

a verification bill router component for routing the verification bill to an at least one pre-defined subscriber.

15 9. The apparatus of claim 1 wherein the at least one subscriber is a network-based service subscriber.

10. The apparatus of claim 1 wherein the at least one service provider is a network-based service provider.

11. The apparatus of claim 1 wherein the at least one service provider is a Mobile Communications Service Provider.

20 12. The apparatus of claim 11 wherein the at least one service provider is a credit-based purchasing and payment service provider.

13. The apparatus of claim 1 wherein the service provided by the at least one service provider to the at least one subscriber is a mobile telephone communication service.

25 14. The apparatus of claim 13 wherein the service provided by the at least one service provider to the at least one subscriber is a goods or services purchasing service associated with credit accounts and credit cards.

15. The apparatus of claim 1 wherein the at least one bill verification device is a bill verification server installed on a computing platform linked to the communications network.

16. The apparatus of claim 1 further comprises the elements of:

5 a service provider device linked to the communication network, for responding to service requests submitted by the at least one user device, for managing and maintaining service usage associated with the submitted requests, for generating call data records associated with service usage units, and for transmitting accumulated call data records
10 for service usage bill generation;

 a service provider billing system coupled to the service provider device for storing subscriber contract information, for storing service provider rules, for calculating and generating service usage bills, and for responding to requests submitted by the at least one bill verification
15 device by transmitting subscriber contract information and service provider rules information to the at least one bill verification device.

17. The apparatus of claim 16 wherein the service provider device is a mobile network switch device.

18. The apparatus of claim 17 wherein the service provider device is a
20 credit card authorization, credit card authentication, and credit-based transaction clearance device.

19. The apparatus of claim 18 wherein the service provider billing system is a billing system installed on a computing platform.

20. The apparatus of claim 1 wherein the at least one user data record
25 comprises:

 a user device identification field for identifying the at least one user device and the associated at least one subscriber;

 a service type indicator field to identify the type of service associated with the usage unit reflected by content of the at least user
30 data record;

a length of use field for providing calculation-specific information to the bill and subscriber processor component;

a service provider identification field for building communication address to the service provider device and for connecting the contract and service provider information to the bill and subscriber processor component; and

a date and time field for user data record identification and for date and time dependent calculations.

21. The apparatus of claim 1 wherein the at least one user device is connectable to a communications network.

22. The apparatus of claim 1 wherein the at least one user device transmits the at least one user data records for bill verification.

23. The apparatus of claim 1 wherein the at least one bill verification device is linked to a communication network.

24. The apparatus of claim 1 wherein the at least one service provider device is linked to a communications network.

25. The apparatus of claim 1 wherein the at least one bill verification device locates potential differences between the at least one comparison bill and the at least one service usage bill.

26. The apparatus of any claims 2, 3 or 4 wherein the communications network is a mobile telephone communications network.

27 The apparatus of claim 26 wherein the communications network is a data communications network.

28. The apparatus of claim 27 wherein the communications network is a credit network.

29. In a communications and computing environment a method for verifying an at least one service usage bill associated with a service and issued to an at least one subscriber by a service provider, the method comprising the steps of:

building an at least one user data record in an at least one user device, the content of the record reflecting an at least one usage unit associated with a service provided by the service provider;

5 transmitting the at least one user data record to the at least one bill verification device from the at least one user device;

obtaining an at least one service usage bill from a service provider billing system in the at least one bill verification device;

10 requesting and receiving service usage bill calculation and bill generation control data from the service provider billing system in the at least one bill verification device;

generating a comparison bill based on the bill calculation and generation control data in the at least one bill verification device;

comparing the comparison bill with the service usage bill in the at least one bill verification device;

15 determining differences between the comparison bill and the service usage bill in the at least one bill verification device; and

generating difference indicators and merge the comparison bill and the difference indicators into a verification bill in the at least one bill verification device.

20 30. The method of claim 29 further comprises activating a data transmission process via a scheduling component or via a manual mechanism for providing periodic user data record transmission from the at least one user device to the at least one bill verification device.

25 31. The method of claim 29 further comprises generating a service usage log file in the at least one user device in response to service usage.

32. The method of claim 29 further comprises the steps of:

30 reading the subscriber rules, the subscriber group rules, the subscriber counter values and the subscriber limitation data in the at least one bill verification device;

processing the subscriber rules, the subscriber group rules in association with the subscriber counter information, the subscriber limitation information, and the comparison bill data in the at least one bill verification device; and

5 generating subscriber and subscriber group rule-specific action indicators based on the rule-based actions in the at least one bill verification device.

33. The method of claim 29 further comprises routing the verification bill to an at least one subscriber in the at least one bill verification
10 device.

34. The method of claim 29 further comprises updating subscriber counters and subscriber limitation data based on the content of the comparison bill in the at least one bill verification device.

35. The method of claim 29 wherein the service provided by the
15 service provider is a mobile telephone communication service.

36. The method of claim 29 wherein the at least one user data record is generated in response to the performance of incoming calls, outgoing calls, SMS message transmission, credit card transactions, and data communications network access.

20 37. The method of claim 36 wherein the at least one user data record transmitted from the at least one user device to the at least one bill verification device via SMS messages.

38. The method of claim 37 wherein the at least one user data record is transmitted from the at least one user device to the at least one bill
25 verification device via infra-red links.

39. The method of claim 38 wherein the at least one user data record is transmitted from the at least one user device to the at least one bill verification device via a credit card reading device linked communicatively to the at least one bill verification device.